



March 1, 2021

Dr. Andi Hodaj, Environmental Engineer
United States Environmental Protection Agency
Water Enforcement Compliance Assurance
77 West Jackson Blvd., Mail Code: WC-15J
Chicago, IL 60604

Subject: **GARY SANITARY DISTRICT MODIFIED CONSENT DECREE**
2nd Semi-Annual Progress Report, July 1, 2020 – December 31, 2020

Dear Dr. Hodaj:

I am pleased to submit t 2nd Semi-Annual Progress Report of 2020, pursuant to requirement of the resent Modified Consent Decree.

I certify under penalty of law that I have examined and am familiar with the information submitted in this document and all attachments; and that this document and its attachments were prepared under my direction or supervision in a manner designed to ensure that qualified and knowledgeable personnel properly gather and present the information contained therein. I further certify, based on my inquiry of those individuals immediately responsible for obtaining the information, that I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Should you have questions concerning this matter, please contact me at 219-944-0595, Ext. 1816.

Sincerely,

Daniel F. Vicari, P.E., BCEE
Executive Director

Enclosures:

1. Consent Decree: Semi-Annual Progress Report
2. GSD Annual Certification of Funds
3. GSD Superintendent's Report: July-December 2020



c: Mark Koller, USEPA
Beth Admire, IDEM
Dave Tennis, IDEM
Mayor Jerome A. Prince
GSD Board of Commissioners
Tony Walker, GSD Attorney
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GARY SANITARY DISTRICT

CONSENT DECREE SEMI-ANNUAL PROGRESS REPORT July 1, 2020 – December 31, 2020

**3600 West 3rd Avenue
Gary, Indiana 46406
Phone: (219) 944-0595
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**Honorable Mayor Jerome Prince
City of Gary**

BOARD OF GARY SANITARY DISTRICT COMMISSIONERS

**Maurice G. Mabon
Charles Peller
Ola V. Morris
Charles W. Jackson
Darnail Lyles**

**Daniel F. Vicari, P.E., BCEE
Executive Director**

**Tony Walker
Attorney**

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VII GENERAL COMPLIANCE REQUIREMENTS

10. Defendants shall at all times comply with: all terms and conditions of the 2012 NPDES Permit and any successor NPDES permit applicable to the POTW; all the applicable provisions of the CWA, 33 U.S.C. § 1251 et seq.; all the applicable regulations promulgated pursuant to the CWA, including but not limited to wastewater monitoring and sampling requirements set forth at 40 C.F.R. Part 136; Title 13 of the IND. CODE § 13, and the Indiana regulations, 327 IND. ADMIN. CODE 5.

Gary Sanitary District has complied, unless otherwise indicated, with the terms of the 2017 NPDES permit, including but not limited to, monitoring and sampling requirements. Persons with knowledge of this information are Rhonda Anderson, Plant Superintendent/Operator of Record, Bob Theodorou, Laboratory Manager, and Kendra Jones QA/QC Chemist.

12. Final Effluent Limits. Defendants shall at all times comply with all applicable requirements related to discharges from Outfall 001 A and Outfall 001 B that are specified in Part I.A.1 of the 2012 NPDES Permit, and all applicable requirements related to discharges from Outfalls 001 A and 001 B that shall be specified in any successor NPDES permit, including but not limited to any limits on quantities, loadings and/or concentrations of the listed parameters, and the related monitoring requirements.

There were no NPDES permit final effluent limit violations during the monitoring period with the exception of final effluent minimum dissolved oxygen (DO) and daily maximum ammonia-nitrogen both of which occurred during the major Aeration Improvement Capital Project. Blowers and headers were replaced and fine bubble diffusers were installed in the contact chambers. Automated controls installation is in progress. Persons with knowledge of this information include Rhonda Anderson, Plant Superintendent/Operator of Record and Dan Vicari, Executive Director.

13. Consent Decree Compliance Funding Requirements.

- a. Defendants shall at all times provide sufficient funding to meet the terms and requirements of this Decree...**

Gary Sanitary District has sufficient funding to meet the terms of this Decree, the 2017 NPDES Permit and applicable provisions of the CWA and the State law. Persons with knowledge of this information include Maurice Mabon, GSD President of the Board of Commissioners, Daniel Vicari, Executive Director, and Jerome Foster, Finance Manager.

- b. The City shall repay all loans that have been extended to it by GARY SANITARY DISTRICT...**

The Plaintiffs, and GSD Board of Commissioners approved a one (1) year Payment Deferral/Extension to the City of Gary for repayment of loans extended to it by the Gary Sanitary District. Those with knowledge of this information include Daniel Vicari, Executive Director, and Jerome Foster, Finance Manager.

VIII. CSO OPERATIONAL PLAN AND LONG-TERM CONTROL PLAN REQUIREMENTS

15. CSO Operational Plan ("CSOOP"). Defendants shall at all times maintain a current copy of the CSOOP on file at the WWTP and operate the POTW in accordance with the CSOOP.

Gary Sanitary District has at all times maintained a current copy of its CSOOP at the WWTP and has operated its WWTP in accordance with the CSOOP. Daniel Vicari, Executive Director, and Rhonda Anderson, Plant Superintendent/Operator of Record, has knowledge of this information.

- a. Not later than 60 Days after the Effective Date, Defendants shall submit to Plaintiffs for review and approval a revised version of the CSOOP that was initially approved by IDEM in 1994...**

Gary Sanitary District updated its 1994 CSOOP and submitted a revised version on May 17, 2018, meeting the 60 day requirement. Daniel Vicari, Executive Director, and Rhonda Anderson, Plant Superintendent/Operator of Record, has knowledge of this information.

- b. By January 31 of each year following the year of submission of the revised CSOOP pursuant to paragraph 15.a of this Decree, Defendants shall submit to Plaintiffs for Plaintiffs' approval any updates, modifications, and/or revisions of the CSOOP pursuant to Section XIX.**

Gary Sanitary District updated its May 17, 2018 CSOOP, incorporating responses to comments received from IDEM on 7/26/2018 and 11/19/2018 and activities performed by GSD from May 17, 2018 through December 31, 2018. GSD submitted Annual Updates to the CSOOP on January 31, 2019 and January 31, 2020, and January 31, 2021. Annual CSO Notification Reports were submitted as required by May 1, 2019 and May 1, 2020. Daniel Vicari, Executive Director, and Rhonda Anderson, Plant Superintendent/Operator of Record, has knowledge of this information.

- c. The EPA upon consultation with IDEM, will review and approve the revised CSOOP...**

On April 4, 2019, GSD received approval from the USEPA and IDEM on the revised CSOOP. In Section 6 of the approved CSOOP, and subsequent updates, GSD provided a Schedule of Future Activities including staffing considerations, collection system projects, infiltration and inflow projects, lift station and regulator upgrades, wastewater treatment plant upgrades, wastewater treatment plant upgrades, and next steps on the Long Term Control Plan. Daniel Vicari, Executive Director, and Rhonda Anderson, Plant Superintendent/Operator of Record, has knowledge of this information.

16. Stress Test...

- c. Within 120 Days of the Effective Date, Defendants shall prepare and submit a report ("Stress Test Report") to Plaintiffs...**

Gary Sanitary District submitted its Stress Test Report on July 17, 2018, meeting the 120 day requirement. The Stress Test Report incorporated responses to IDEM and USEPA comments from 1/12/2018. In a letter dated February 22, 2019, GSD was notified that the submitted Stress Test Report was approved. Daniel Vicari, Executive Director, has knowledge of this information.

17. Maximization of Flow

- a. Defendants shall maximize treatment and influent pumping at the WWTP and make maximum use of the transport and storage capacity of the Collection System to minimize the number, duration, and volume of CSO Discharges.**
- b. Defendants shall operate the POTW at the maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency, and duration of CSOs.**

Gary Sanitary District continues to maximize treatment and influent pumping and operate the plant at the maximum treatable flow during rain events to reduce the magnitude, frequency, and duration of CSOs. The maximum treatable flow conditions are detailed in the Stress Test Report approved on February 22, 2019. Persons with knowledge of this information include Rhonda Anderson, Plant Superintendent/Operator of Record.

- c. Defendants shall make maximum use of the Collections System storage capacity. Within 180 days of Effective Date, defendants shall survey weir heights....**

Gary Sanitary District has conducted a weir survey and compared them to basement elevations to determine the appropriate height to which the weirs can be raised in order to increase Collections System Storage. In addition, weirs were raised, where possible, to minimize overflows and basement backups. Kola Awosika, Director of Engineering, has knowledge of this information.

18. Other Operational and Maintenance Requirements Defendants shall at all times comply with the following terms and conditions regarding operation and maintenance.....

- a. Defendants shall at all times keep fully open all influent gate valves of the headworks of the WWTP except as provided herein...**

Influent gates were kept fully open 100% of the time between July 1, 2020 and December 31, 2020. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

- b. Defendants shall have no primary clarifiers out of service except pursuant to the requirements in Part II B of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permit.**

There were no primary clarifiers out of service from July 1, 2020 through December 31, 2020 except for essential maintenance and there were no effluent violations as a result of this maintenance, consistent with the 2017 NPDES permit Part II.B.2.f. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

- c. Defendants shall have no secondary clarifiers out of service except pursuant to the requirements in Part II B of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permit.**

There were no secondary clarifiers out of service from July 1, 2020 through December 31, 2020, except for essential maintenance and there were no effluent violations as a result of this maintenance, consistent with the 2017 NPDES permit Part II.B.2.f. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

- d. Defendants shall have no filter cells out of service except pursuant to the requirements in Part II B of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permit.**

There were no filter cells out of service from July 1, 2020 through December 31, 2020, except for essential maintenance and there were no effluent violations as a result of this maintenance, consistent with the 2017 NPDES permit Part II.B.2.f. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent, /Operator of Record, and Juan Roldan, Maintenance Supervisor.

- e. Defendants shall have no influent pumps out of service except pursuant to the requirements in Part II B of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permit.**

There were no influent pumps out of service from July 1, 2020 through December 31, 2020, except for essential maintenance and there were no effluent violations as a result of this maintenance, consistent with the 2017 NPDES permit Part II.B.2.f. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

- f. Defendants shall have no bar screens or grit tanks out of service except pursuant to the requirements in Part II B of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permit.**

There were no bar screen or grit tanks out of service from July 1, 2020 through December 31, 2020, except for essential maintenance and there were no effluent violations as a result of this maintenance, consistent with the 2017 NPDES permit Part II.B.2.f. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

- g. Defendants shall not have the trash rack out of service except pursuant to the requirements in Part II B of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permit.**

The trash rack was not out of service from July 1, 2020 through December 31, 2020, except for essential maintenance and there were no effluent violations as a result of this maintenance, consistent with the 2017 NPDES permit Part II.B.2.f. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

- h. Defendants shall operate and maintain the WWTP so as to minimize the amount of time any treatment unit is out of service, and to the extent possible, avoid having more than one type of treatment unit out of service at any one time...**

Gary Sanitary District operated and maintained the WWTP in such a way as to minimize the amount of time treatment units were out of service. Persons who have knowledge of this are Rhonda Anderson, Plant Superintendent/Operator of Record, and Juan Roldan, Maintenance Supervisor.

19. Long Term Control Plan Development. Defendants shall develop a long term control plan ("LTCP") to control discharges from the CSO Outfalls in accordance with Section IV of Attachment A to the 2012 NPDES Permit, the CSO Control Policy, all applicable provisions of the CWA and Indiana State law, and with requirements in Appendix 3 of this Consent Decree and the LTCP Development Schedule set forth in Attachment 1 to Appendix 3.

Having previously submitted the revised Characterization Report on January 31, 2019, Gary Sanitary District submitted the Long Term Control Plan Alternatives Analysis and Cost-Benefit/Plan Development on August 8, 2019 to the USEPA and IDEM. In addition, Alternative Analysis and Recommended Plan, addenda #2, and Response to Agency Comments were submitted on August 28, 2020 and Financial Capability Analysis Modeling Files were submitted on September 9, 2020. Daniel Vicari, Executive Director, has knowledge of this information.

20. Public and Regulatory Participation Plan. No later than 60 Days after the Effective Date, Defendants shall submit to Plaintiffs for Plaintiffs' approval pursuant to Section XIX (Plaintiff's Approval of Plans and Other Submissions) a revised plan for public and regulatory agency participation ("Participation Plan")...

Gary Sanitary District submitted its Participation Plan on May 18, 2018, meeting the 60 day requirement. USEPA sent an approval notification to Gary Sanitary District on June 15, 2018. In addition, GSD submitted a response to Round 1 Agency Comments on 5/8/20. GSD also facilitated and participated in a number of calls and meetings to discuss various aspects of the LCTP such as:

- Regulatory Agency Meeting #1 (Consent Decree Clarifications Meeting) was held on March 1, 2017,
- Regulatory Agency Meeting #2 (Wastewater Treatment Plant Walk Thru) was held on May 10, 2018,
- Regulatory Agency Meeting #3 (CSO Characterization Report) was held on December 19, 2018,
- Regulatory Agency Meeting #4 (Baseline Conditions) was held on 5/31/19,
- Public Participation Meeting #1 (Initial Results of LTCP) was held on July 11, 2019, which was advertised via public notice and on social media outlets and several local stakeholders and community members were attendance,
- Regulatory Agency Meeting #5 (Alternatives and Recommended Plan Evaluation) was held on 9/30/19,
- Regulatory Agency Meeting #6 (Alternative Analysis and Recommended Plant Evaluation) was held on 12/18/19.
- Regulatory Agency Meeting #7 (Alternatives and Recommended Plan) was held on 3/4/20,
- Regulatory Agency Meeting #8 (Additional Clarifications on the Technical and Financial Analysis) was held on 6/24/20,
- Regulatory Agency Meeting #9 (Additional Clarifications on the Technical and Financial Analysis) was held on 9/24/20,
- Regulatory Agency Meeting #10 (Additional Clarification on the Technical and Financial Analysis) was held on 12/9/20.

Upon receipt of USEPA approval of the Alternatives Analysis and Recommended Plan Evaluation, the next steps in this process are:

- Long Term Control Plan – Draft and Final
- Public Meeting #2,
- Regulatory Agency Participation (throughout the process).

Daniel Vicari, Executive Director, has knowledge of this information.

**IX. RALSTON STREET LAGOON AND GRAND CALUMET RIVER
REMEDATION REQUIREMENTS**

23.

b. No later than 60 days after the Effective date, Defendants shall submit to EPA, in accordance with Section XIX (Plaintiffs Approval of Plans and Other Submissions) of this Decree, a proposed schedule for the completion of the remediation of the Ralston Street Lagoon in accordance with the RSL Final Decision.

Gary Sanitary District submitted a proposed schedule for remediation of the Ralston Street Lagoon on 5/18/2018, meeting the 60 day requirement. Daniel Vicari, Executive Director, has knowledge of this information.

24.

Remediation Account Fund. Defendants shall continue to maintain the Remediation Account as a separate, interest bearing account designated for the remediation of the sediment of the Grand Calumet River.

The Gary Sanitary District continues to maintain separate interest bearing accounts designated for the remediation of the sediment of the Grand Calumet River. Currently, there is \$2,882,846.46 in the remediation accounts. Jerome Foster, GSD Finance Manager, has knowledge of this information.

X. SUPPLEMENTAL ENVIRONMENTAL PROJECT

31. Defendants shall complete the supplemental environmental project ("SEP") in accordance with this Section and provisions of Appendix 5.

- a. Gary Sanitary District hired Cardno to conduct invasive control activities at the Pine Station Nature Preserve oxbow (the "Oxbow"), a roughly 19-acre parcel on the banks of the Grand Calumet River. Removal of invasives will allow for the re-vegetation of native species after the project end. From July 1, 2020 through December 31, 2020, Cardno continued invasive control activities at a cost of \$50,653.39.
- b. Gary Sanitary District certifies:
 1. That all cost information provided to Plaintiffs in connection with the Plaintiffs' approval of the SEP is complete and accurate and that Defendants in good faith estimate that the cost to implement the SEP is \$175,000.
 2. That, as of the date of executing this Decree, Defendants are not required to perform or develop the SEP by any federal, state, or local law or regulation and are not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum.
 3. That the SEP is not a project that Defendants were planning or intending to construct, perform, or implement other than in settlement of the claims resolved in this Decree.
 4. That Defendants have not received and will not receive credit for the SEP in any other enforcement action.
 5. That Defendants will not receive reimbursement for any portion of the SEP from another person or entity.
 6. That Defendants represent that as governmental entities they do not pay federal or state taxes.
 7. That Defendants are not a party to any open federal financial assistance transaction that is funding or could be used to fund the same activity as the SEP.
 8. That, to the best of Defendants' knowledge and belief after reasonable inquiry, there is no open federal financial transaction that is funding or could be used to fund the same activity as the SEP, nor has the same activity been described in an unsuccessful federal financial assistance transaction proposal submitted to EPA within two years of the date that Defendants are signing this Consent Decree.

Daniel Vicari, GSD Executive Director, has knowledge of this information.

XI. REPORTING AND CERTIFICATION REQUIREMENTS

32.

d. Description of all equipment or facilities used or installed at the WWTP or any portion of the Collection System that had been out of service during the six months covered by the report, including the date the equipment or facilities were first out of service and the date when it returned to service or will be returned to service, as appropriate, including the repair/replacement costs. This includes equipment such as vacuum trucks and street sweepers.

The description of equipment and facilities that were out of service for maintenance during the monitoring period is included. Persons with knowledge of this information include Rhonda Anderson, Plant Superintendent/Operator of Record, Juan Roldan, Maintenance Supervisor, Lamingo Tomlin Collections Manager, and Hector Medina, Maintenance Support Specialist.

34. Submissions of Reports Required by NPDES Permits. Defendants shall submit to EPA the following reports that are generated pursuant to the requirements of the 2012 NPDES permit or pursuant to the corresponding provisions of any successor NPDES permits.....

Gary Sanitary District has submitted timely reports, including but limited to MRO, DMR, and CSO reports to IDEM and USEPA. Persons who have knowledge of this information include Daniel Vicari, Executive Director, Rhonda Anderson, Plant Superintendent/Operator of Record, and Bob Theodorou, Laboratory Manager.

36. Certificate of Sufficient Funding...

Certificate of Sufficient Funding by the Maurice Mabon, GSD Board of Commissioners President, is included. Persons with knowledge of this information include the Maurice Mabon, GSD Board President, Daniel Vicari, Executive Director, and Jerome Foster, Finance Manager.

XII Special Administrator

44. The Superintendent of the WWTP shall submit reports to the Special Administrator on a semi-annual basis...

The Semi-Annual Superintendent's Report for the period July 1, 2020 through December 31, 2020 was submitted to The Honorable Mayor of the City of Gary, Jerome Prince, by the January 15, 2021 due date and is included. Persons who have knowledge of this information include, The Honorable Mayor of the City of Gary, Jerome Prince, Daniel Vicari, Executive Director, and Rhonda Anderson, Plant Superintendent.

GSD Corrective Maintenance				
Out Of Service	Equipment	Maintenance	Back In Service	Costs
6/24/2020	A-40 and B-40 Raw Sewage Pumps	Replaced 1200A, 480 volt breaker	7/1/2020	\$15,968.00
7/1/2020	Vactor V-07-001	Hydraulic leak from o-rings	7/1/2020	\$703.81
7/2/2020	5-20 Raw Sewage Pump	Repaired	7/6/2020	\$125.40
7/6/2020	GBT Air Compressor #4	Repaired leak	7/6/2020	\$293.48
7/7/2020	GBT Air Compressor #1	Repaired oil leak	7/7/2020	\$1,671.50
7/7/2020	Aerator #6	Replaced DO meter	7/8/2020	\$1,800.00
7/13/2020	Dewatering-Scale	Repaired scale	7/14/2020	\$292.00
7/14/2020	B-40 Raw Sewage Pump	Repaired heatsink overtemp	7/14/2020	\$1,712.00
7/24/2020	Digester Control House #4	Replaced (2) 6 inch check valves	7/24/2020	\$4,203.79
7/24/2020	Gravity Belt Thickener	Replaced GBT drive roll and belt	7/24/2020	\$9,746.05
7/29/2020	Grinder #5	Repaired	7/29/2020	\$192.94
7/29/2020	Belt Press #4	Replaced belt	7/30/2020	\$4,297.15
7/31/2020	Secondary Clarifier Tank #17	Repaired skimmer arm	7/31/2020	\$523.49
7/31/2020	Bypass Gate (84 inch)	Replace actuator	7/31/2020	\$9,703.10
8/3/2020	Belt Press #1	Repaired side skirts & doctor blades	8/3/2020	\$313.66
8/4/2020	Turbidity Meter	Repaired readout on display screen	8/4/2020	\$1,114.00
8/4/2020	6.0 Auto-Sampler	Repaired temperature & sampling functionality, power supply restored.	8/6/2020	\$856.00
8/7/2020	East RAS Pump #1	Repaired leak	8/7/2020	\$307.93
8/10/2020	East RAS Pump #2	Replaced control panel	8/11/2020	\$110.50
8/17/2020	Digester Tank #6	Repaired #5 pump and adjusted controls at Digester Control House # 3	8/17/2020	\$104.09
8/19/2020	North Primary Gallery	Repaired limit torque #5	8/19/2020	\$214.00
8/19/2020	Boiler	Repaired water bypass	8/19/2020	\$3,741.43
8/12/2020	Belt Press #4	Repaired	8/20/2020	\$118.98
8/6/2020	Primary Tank #10 Long Flight	Repaired motor and pass #1 chain	8/21/2020	\$1,350.71
8/19/2020	Chemical Building	Repaired gas leak	8/21/2020	\$7,157.50
8/28/2020	West RAS Pump #1	Repaired leakage	8/28/2020	\$786.21
8/19/2020	East RAS Scum Pump #2	Repaired pump	8/31/2020	\$140.18
8/31/2020	Sodium Hypochlorite Feed	Replaced pump #2 hoses	8/31/2020	\$383.99
8/31/2020	Sodium Hypochlorite Feed	Replaced pump #1 hoses	8/31/2020	\$138.61
8/31/2020	Digester Control House #4	Repaired sensor for conduit	8/31/2020	\$999.21
9/1/2020	Digester Control House #1 Pump #1	Replaced pump and installed VFD	9/8/2020	\$27,584.82
9/15/2020	Belt Press #2	Replaced belt	9/15/2020	\$4,204.25
8/4/2020	GBT Sludge Pump #5	Rebuilt	9/25/2020	\$10,231.86
9/29/2020	East Grit Classifier #1	Repaired leak	9/29/2020	\$973.80
9/29/2020	Sodium Bisulfite Pump #2	Replaced hose	9/29/2020	\$659.64
10/5/2020	Primary #10	Repaired electrical wiring for cross flight	10/15/2020	\$3,924.26
10/16/2020	Vactor V-15-07	Replace PTO	10/19/2020	\$932.07
10/20/2020	East Grit Classifier #1	Repaired leak	10/20/2020	\$842.70

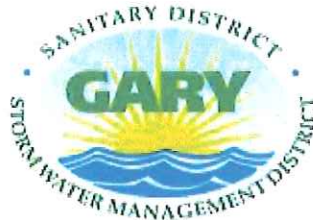
Out Of Service	Equipment	Maintenance	Back In Service	Costs
10/15/2020	Digester Control House #1 Pump #2	Replaced pump and installed VFD	10/23/2020	\$27,584.82
10/27/2020	GBT Sludge Pump #5	Replaced gearbox and motor	10/27/2020	\$3,287.37
10/28/2020	Belt #2 Feed Pump	Replaced the drive belt	10/28/2020	\$1,213.13
10/28/2020	Bar Screen #3	Repaired motor	11/9/2020	\$2,618.67
11/12/2020	Belt Press #4	Repaired	11/12/2020	\$5,112.84
11/16/2020	42.0 Auto-sampler	Replaced feed pump	11/16/2020	\$1,236.78
11/16/2020	RSP Seal water pump	Rewired	11/24/2020	\$3,151.34
11/18/2020	East RAS Scum Pump #2	Repaired	11/18/2020	\$655.97
8/7/2020	East RAS Pump #1	Rebuilt RAS Pump # 1	11/20/2020	\$26,129.27
7/28/2020	Vactor V-07-001	Repair of boom, arrow board, front yokes, power socket, harness, circuit breaker panel , spot light, license plate light, connect lines, brakes,door, locks, tire rods, wear plate assembly	11/30/2020	\$38,907.00
9/2/2020	Bar Screen #1	Power cable replaced	12/14/2020	\$9,402.43
12/14/2020	Gravity Belt Thickener (GBT)	Replaced belt	12/14/2020	\$1,827.73
12/11/2020	Belt Press #2	Replaced hydraulic power pump	12/21/2020	\$1,154.46
NA*	Digester Boilers	Replaced 3 boilers	NA*	\$1,017,473.59
NA**	Aeration blowers and headers	Replaced all blowers and headers**	NA	\$5,420,797.85

TOTAL \$6,678,976.36

*There were always at least 2 boilers in service throughout construction

**Temporary blowers were rented for use during the demolition and installation of new equipment

MAYOR JEROME A. PRINCE



DANIEL F. VICARI, P.E., BCEE
Executive Director

AN EQUAL OPPORTUNITY EMPLOYER

www.garysanitary.com

January 29, 2021

Chief, Water Enforcement
Compliance Branch
U.S. Environmental Protection
Agency, Region V – Water Division
77 West Jackson Boulevard
Chicago, IL 60604

Chief, Environmental Enforcement
Section
U.S. Department of Justice
DOJ No.: 90-5-1-1-2601B
P.O. Box 7611
Washington, DC 20044

RE: USA, et al. v. City of Gary and Gary Sanitary District
Modified Consent Decree and Judgement – 2002
GSD's Annual Certification of Sufficient Funds

Dear Chief:

Pursuant to the requirements of Article IX, Section 47 of the Consent Decree, I hereby certify that during the Year 2021, the Gary Sanitary District will have sufficient funds readily available to meet the obligations of the Decree.

Sincerely,

DocuSigned by:
Maurice G. Mabon
7F24728A99F4482...

Maurice G. Mabon, Board President
Gary Sanitary District

cc: GSD Board of Commissioners
Daniel F. Vicari, GSD Executive Director
W. Tony Walker, GSD Attorney
Rhonda Anderson, GSD Superintendent
Wayne Ault, USDOJ
Nicholas McDaniel, USDOJ
Mark Koller, USEPA
Beth Admire, IDEM



Gary Sanitary District
Superintendent's Report

July 1, 2020 through December 31, 2020



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Executive Summary

As required by Section XII, paragraph 44, of the modified Consent Decree, this Semi-annual Superintendent's Report is submitted. The report includes activities and plant performance data from July 1, 2020 through December 31, 2020 that are relevant to compliance with the modified Consent Decree, National Pollutant Discharge Elimination System (NPDES) permit, and Clean Water Act.

The monitoring period is highlighted by the installation of new and more energy efficient boilers, installation of fine bubble diffusers in the contact chambers, the replacement of the 14" line that conveys air from the blowers to the contact chambers, and installation of new and more energy efficient blowers. GSD received Energy Efficiency Program checks from NIPSCO for these projects. In addition a new lift station serving the Black Oak community is being construction and over 6000 feet of sewer mains were either replaced or lined.

All parameters were in compliance with NPDES effluent limits during the monitoring period with the exception of dissolved oxygen (DO) and ammonia-nitrogen (NH3-N). The DO issues were resolved with the aforementioned aeration project improvements. NH3-N exceedances occurred during maintenance of operations issues related to the aeration improvement project that is currently underway. Specifically, there were problems with blowers that were rented to use during the demolition and replacement of old blowers and header piping.

Treated water was 27% lower for the monitoring period than the corresponding monitoring period a year ago due to a 39% decrease in inches of rain.

GSD removed 98.7% of biochemical oxygen demand, 98.6% of total suspended solids, 95.1% of phosphorus, and 98.2% of ammonia-nitrogen, when comparing raw influent sample results with final effluent sample results.

Results of Whole Effluent Toxicity analysis indicate that the plant's effluent was neither acutely nor chronically toxic to test species at 100% of the effluent sample concentration.

For this monitoring period, there were 7 wet weather Combined Sewer Overflows (CSOs), 14.9 inches of rain, and 8.6 MG discharged into the Little Calumet and Grand Calumet Rivers. These figures represent 65%, 39%, and 94% decreases respectively, compared to a year ago.

Dewatered sludge totaling 18,822 wet tons was hauled to Newton County Landfill, 27% less than a year ago.

Routine maintenance, corrective maintenance, preventive maintenance, and capital improvement projects were completed at a cost of \$13,302,981.44,

The Collections Department cleaned and televised 108,198 and 16,429 linear feet of sewer lines respectively, cleaned 2,634 catch basins, and inspected 594 manholes. In addition, 396 miles of city streets were swept and 1,322 tons of debris was removed by GSD street sweepers.



I. WWTP Overview

The Gary Sanitary District (GSD) Wastewater Treatment Plant (WWTP) treats sanitary, storm water, and industrial wastewater to produce an effluent waste stream that meets the requirements of the modified Consent Decree, the NPDES permit, and the Clean Water Act. The WWTP is located in Gary, Indiana and serves a population of approximately 150,000 within the service area comprised of Gary, and the satellite communities of Hobart, Merrillville, and Lake Station.

Wastewater is treated at the Class IV 60 MGD single-stage nitrification WWTP consisting of, a trash rack, four mechanical bar screens, two detritus tanks, two cyclone de-gritters, seven raw sewage pumps, two wet wells, ten primary clarifiers with scum collection and primary de-gritter systems, six aeration tanks, twenty-four secondary clarifiers, twenty sand filters, and a chlorination/de-chlorination system. Treatment of sludge includes gravity thickener tanks, a gravity belt thickener, anaerobic digesters and belt filter presses.

In July 2017, a modified NPDES permit was issued for GSD. Some of the changes include slightly stricter limits for Whole Effluent Toxicity (WET) Chronic Toxicity (2.0 TUc from 2.2 TUc) and an Annual Mercury Average of 1.8 ng/L, a Monthly Mercury Average of 1.3 ng/L and a Mercury Daily Max of 3.16 ng/L. In addition, the Zinc Daily Max and Monthly Average effluent limits were eliminated. The complete list of GSD Effluent Limits follows:

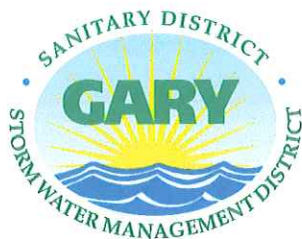


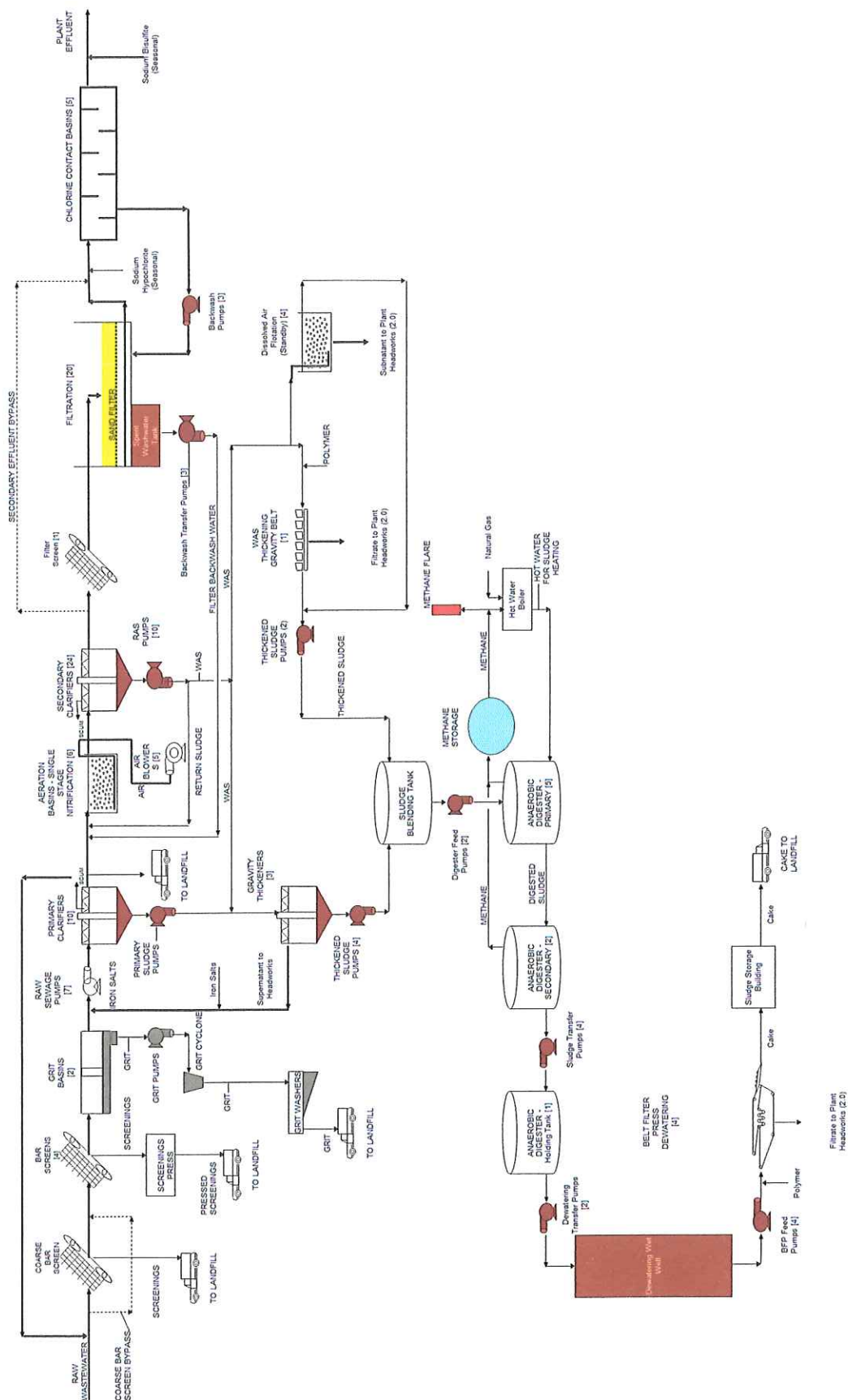
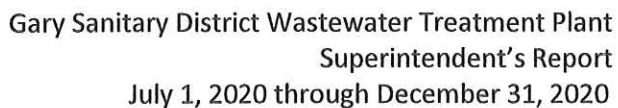
Table 1: GSD Effluent Permit Limits

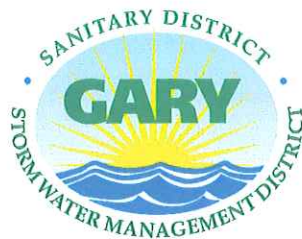
Parameter	Limit
Flow	Report MGD
Carbonaceous Biochemical Oxygen Demand (cBOD5) Weekly Average (summer; winter)	7.5 mg/L; 13.2 mg/L
Carbonaceous Biochemical Oxygen Demand (cBOD5) Monthly Average (summer; winter)	5.0 mg/L; 8.8 mg/L
Total Suspended Solids (TSS) Weekly Average (summer; winter)	9.0 mg/L; 14.4 mg/L
Total Suspended Solids (TSS) Monthly Average (summer; winter)	6.0 mg/L; 9.6 mg/L
Phosphorus (TPO4-P) Monthly Average	1.0 mg/L
Ammonia – Nitrogen (NH3-N) Daily Maximum (summer; winter)	2.33 mg/L; 2.63 mg/L
Ammonia – Nitrogen (NH3-N) Monthly Average (summer; winter)	1.00 mg/L; 1.13 mg/L
pH Daily Minimum	6.0 SU
pH Daily Maximum	9.0 SU
<i>E. coli</i> Daily Maximum	235 cfu/100 ml
<i>E. coli</i> Monthly Geometric Mean	125 cfu/100 ml
Total Chlorine Residual (TCR) Daily Maximum	0.018 mg/L
Dissolved Oxygen (DO) Daily Minimum (summer; winter)	6.0 mg/L; 5.0 mg/L
Oil and Grease (O&G) Daily Maximum	10.0 mg/L
Mercury (Hg) Monthly Average	1.3 ng/L
Mercury (Hg) Daily Max	3.16 ng/L
Mercury (Hg) Annual Average	1.8 ng/L
Whole Effluent Toxicity (WET) – Daily Maximum	1.0 TUa
Whole Effluent Toxicity (WET) – Monthly Average	2.0 TUc

Summer limits are applicable from May 1 – November 30.

Disinfection season, *E. coli* and Total Chlorine Residual limits are applicable from April 1 – October 31.

A schematic of the GSD WWTP follows.





II. 2020 WWTP Results

Wastewater Treatment

Raw sewage, or influent, enters the WWTP through the combined sewer interceptor and flows through the trash rack bars spaced 2¾ inches apart. The trash rack removes large debris that could potentially damage plant equipment. From the trash rack wastewater flows through bar screens spaced 1/4 of an inch apart to remove smaller debris. Wastewater flows from the bar screens to the detritus tanks where flow slows to allow heavier solids to settle by gravity. Wastewater flows through the detritus tanks to the raw sewage wet wells.



Figure 1: Trash Rack

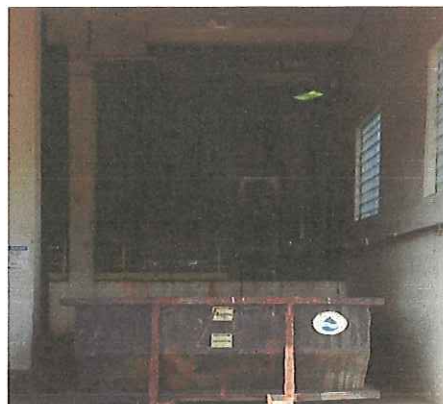


Figure 2: Bar Screen Chute and Collection Box

Recycled wastewater including, supernatant from the gravity thickener tanks, filtrate from the gravity belt thickener, and filtrate from the belt filter presses is added to the influent waste stream downstream of detritus tanks. Historically, ferrous chloride was injected into the recycle wastewater stream for phosphorus removal. However, starting in January 2018, GSD implemented Enhanced Biological Phosphorus Removal (EBPR) by discontinuing chemical addition and facilitating biological phosphorus removal by stabilizing Solids Retention Time (SRT) in the activated sludge process. Ferrous chloride is now used as a contingency plan and was not used for phosphorus removal during the monitoring period. Papers were presented at annual Illinois IWEA, and annual Indiana IWEA Conferences, in 2019 and 2018 respectively, detailing the conversion from chemical to biological phosphorus removal.

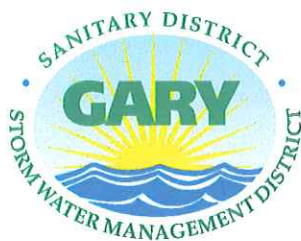


Figure 3 and Table 2 reflect the monthly average flow that was recycled, monthly average raw influent flow, and max hourly peak flow from July 1, 2020 through December 31, 2020. The 27% decrease in influent flow was consistent with a 39% decrease in rain for corresponding months in 2019.

Figure 3: WWTP Flows

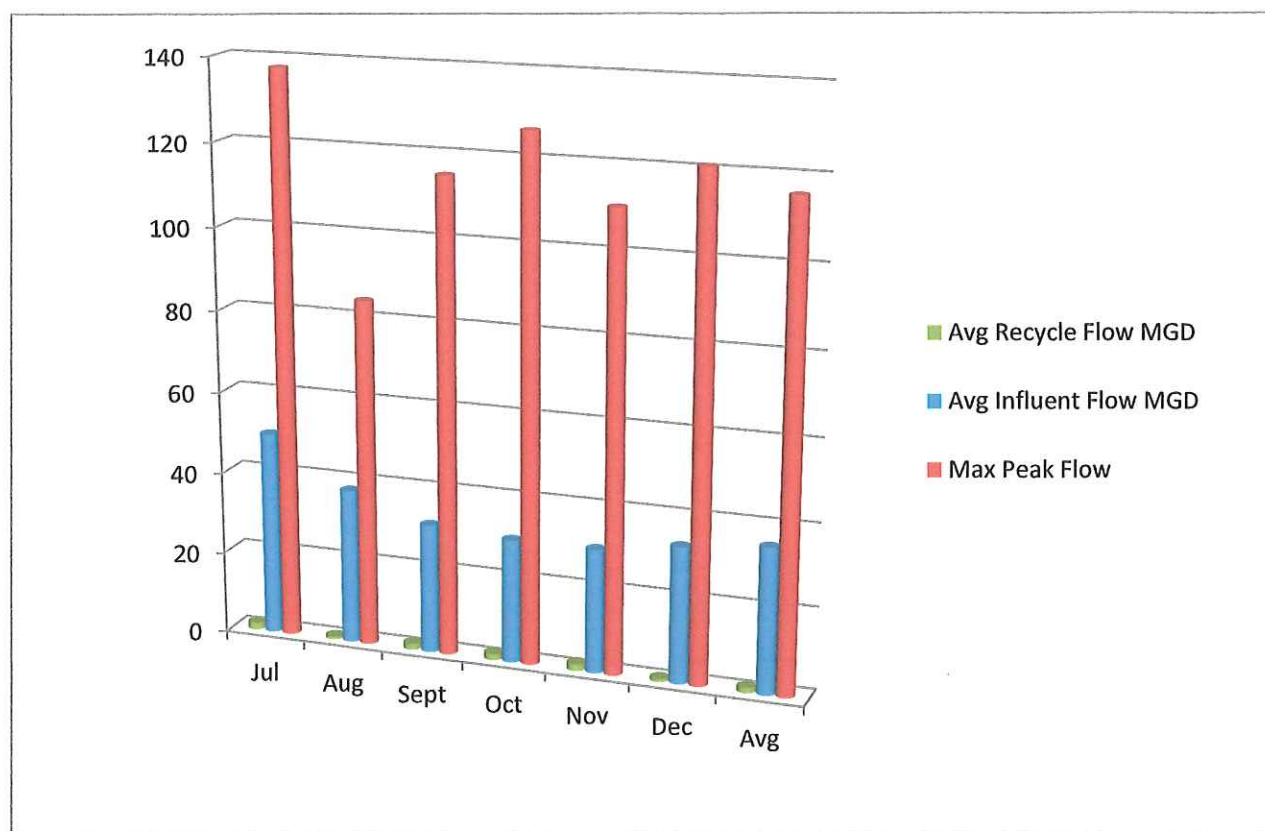


Table 2: GSD WWTP Flows

Flow (MGD)	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Recycle	1.7	0.7	1.4	1.5	1.6	0.7	1.3
Influent	49.8	37.8	31.5	30.1	30.2	33.2	35.1
Peak	137.6	84.3	115.1	126.5	110.5	120.9	114.8



Samples of the raw influent are analyzed daily for Carbonaceous Biochemical Oxygen Demand (cBOD₅), Total Suspended Solids (TSS), Phosphorus (TPO₄-P), and Ammonia-Nitrogen (NH₃-N). The average concentrations of raw influent during the monitoring period July 1, 2020 through December 31, 2020 are indicated in Table 3.

There are seven horizontal centrifugal raw sewage pumps that transfer wastewater from the wet wells to ten primary clarifiers. The primary treatment process is designed to reduce flow velocity to allow solids that are heavier than water to settle to the bottom via gravity and solids that are lighter than water to float to the top.



Figure 4: Primary Clarifier

Table 3: Raw Influent Characteristics

Parameter	Jul	Aug	Sep	Oct	Nov	Dec	Avg
cBOD₅	136 mg/L	179 mg/L	223 mg/L	279 mg/L	314 mg/L	216 mg/L	225 mg/L
TSS	112 mg/L	104 mg/L	154 mg/L	149 mg/L	176 mg/L	198 mg/L	149 mg/L
TPO₄-P	1.4 mg/L	2.0 mg/L	2.7 mg/L	2.4 mg/L	2.3 mg/L	2.7 mg/L	2.3 mg/L
NH₃-N	11.4 mg/L	18.3 mg/L	22.1 mg/L	25.9 mg/L	30.4 mg/L	19.9 mg/L	21.3 mg/L



From July 1, 2020 through December 31, 2020, the primary treatment process removed on average, 11.9% CBOD5, and 57.7% TSS. Most of the remaining CBOD5, TSS, TPO4-P, and NH3-N, were removed in the secondary and tertiary treatment processes.

Figure 5: Primary Treatment Results

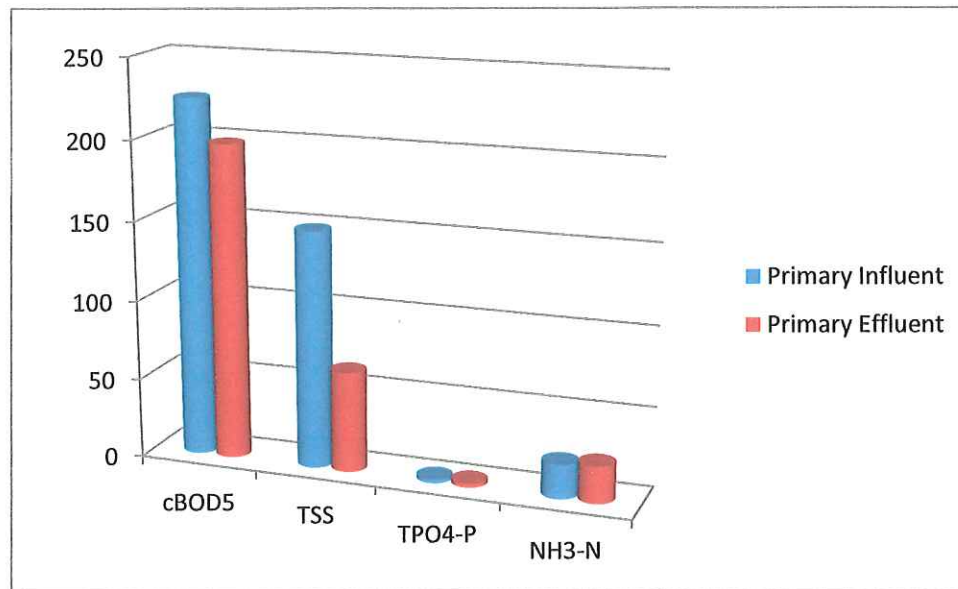


Table 4: Primary Treatment Results

Parameter	Raw Influent	Primary Effluent	% Removal
cBOD5	225 mg/L	198 mg/L	11.9%
TSS	149mg/L	63 mg/L	57.7%
TPO4-P	2.3 mg/L	2.5 mg/L	-
NH3-N	21.3 mg/L	23.0 mg/L	-



From primary clarifiers, wastewater flows to the secondary treatment process, a single-stage activated sludge nitrification system consisting of six aerators and twenty-four secondary clarifiers. This part of the treatment process is primarily biological, where microorganisms feed off of organic matter passing through the aerators. Air is added to the aerators to facilitate microbial viability.

Figure 6: Aeration Basins

From the aerators, the wastewater flows to 24 secondary clarifiers. The majority of the sludge that settles in the secondary clarifiers is returned to the aerators to re-seed the aerators with biomass necessary for continuation of the activated sludge process. Excess sludge is wasted. A properly operated secondary treatment process effectively removes most of the remaining cBOD₅, TSS, TPO₄-P, and NH₃-N.



Figure 7: Square Secondary Clarifier

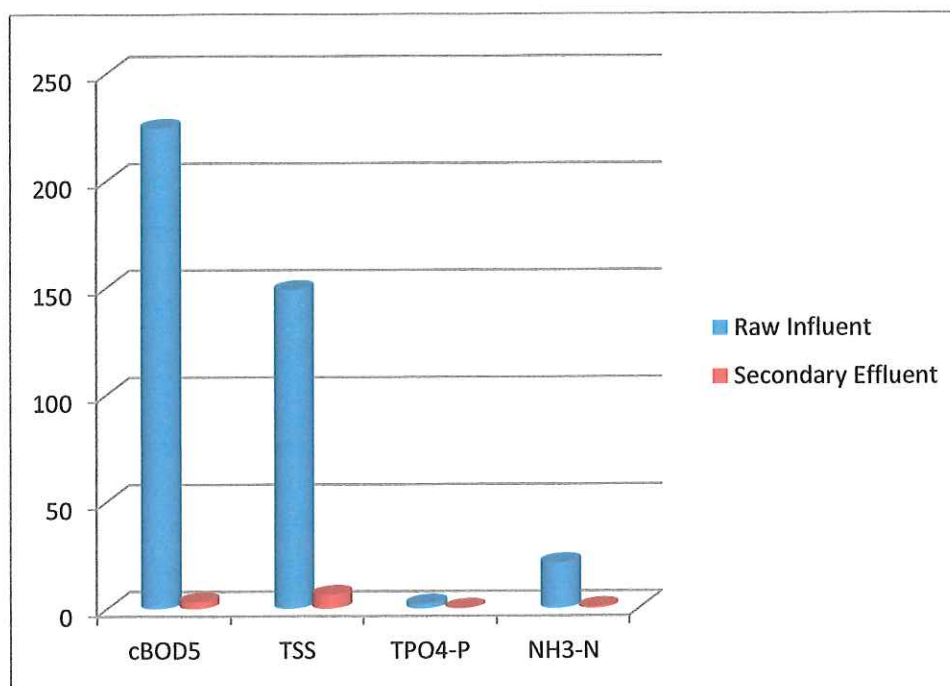


Figure 8: Round Secondary Clarifier

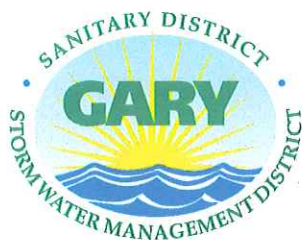


From July 1, 2020 through December 31, 2020 when secondary effluent sample results are compared to raw influent sample results, there was 98.6% removal of cBOD5, 95.7% removal of TSS, 91.9% removal of TPO4-P, and 96.7% removal of NH3-N as indicated in Figure 9 and Table 5.

Table 5: Secondary Treatment Results



Parameter	Raw Influent	Secondary Effluent	% Removal
cBOD5	225 mg/L	3.1 mg/L	98.6%
TSS	149 mg/L	6.5 mg/L	95.7%
TPO4-P	2.3 mg/L	0.2 mg/L	91.9%
NH3-N	21.3 mg/L	0.7 mg/L	96.7%



Wastewater from secondary clarifiers enters the tertiary filtration process to remove small particulate matter that did not settle in the secondary clarifiers.



Figure 10: Tertiary Filter Screw Pumps



Figure 11: Filter Cell

Disinfection is a seasonal process starting annually April 1st and ending October 1st. Throughout that six-month period sodium hypochlorite is added to the contact chambers to inactivate *E. coli* and sodium bisulfite is added prior to discharge into the Grand Calumet River to de-chlorinate the waste stream. In addition, air is added year-round as needed to ensure that there is adequate dissolved oxygen (DO) to protect aquatic life.



Figure 12: Chlorine Contact Chamber



Figure 13: Effluent Discharge Channel



All parameters were in compliance with NPDES effluent limits during the monitoring period with the exception of dissolved oxygen (DO) and ammonia-nitrogen (NH₃-N). The DO issues were due to a leaky 14" pipe that conveyed air from the blowers to the contact chambers. The pipe was replaced and fine bubble diffusers were installed in the contact chambers and there have been no final DO exceedances since. NH₃-N exceedances occurred during maintenance of operations issues related to the major aeration improvement project that is currently underway. Specifically, there were problems with blowers that were rented to use during the demolition and replacement of old blowers and header piping.

The following figures and tables further highlight the GSD's WWTP results from July 1, 2020 through December 31, 2020.



Carbonaceous Biochemical Oxygen Demand (cBOD5) is a measurement of the amount of oxygen consumed by microorganisms during decomposition of organic matter in wastewater. Typically, the higher the value, the more polluted the water. Thus, cBOD5 must be significantly reduced to protect receiving waters. The results indicate that on average, 98.7% of cBOD5 was removed when comparing raw influent sample results to final effluent sample results. Moreover, GSD was in significant compliance with NPDES permit limits during the monitoring period.

Figure 14: cBOD5 Influent vs Effluent

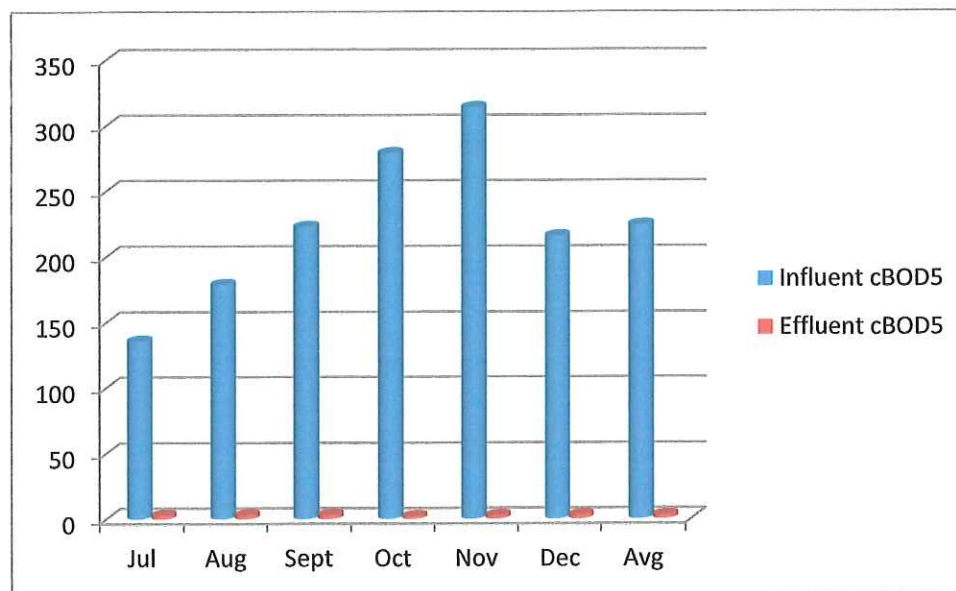
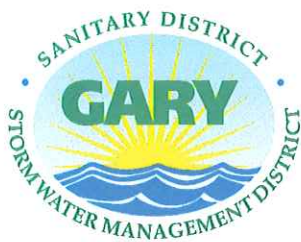


Table 6: cBOD5 Raw Influent vs Final Effluent

	Jul	Aug	Sep	Oct	Nov	Dec	Average
Influent	136 mg/L	179mg/L	223 mg/L	279 mg/L	314 mg/L	216 mg/L	225 mg/L
Effluent	2.9 mg/L	3.1 mg/L	3.2 mg/L	2.2 mg/L	2.7 mg/L	3.0 mg/L	2.9 mg/L
Removed	97.9%	98.3%	98.6%	99.2%	99.1%	98.6%	98.7%



Total Suspended Solids, or TSS, are solid particles suspended in wastewater. TSS is difficult to settle and remove, can provide safe harbor for harmful microorganisms, and can limit essential sunlight from reaching aquatic plant life. It is therefore desirable to remove as much TSS as possible before discharge into receiving waters. On average, 98.6% of TSS was removed when comparing raw influent samples to final effluent samples. There were no TSS NPDES permit effluent limit violations during the monitoring period.

Figure 15: TSS Influent vs Effluent

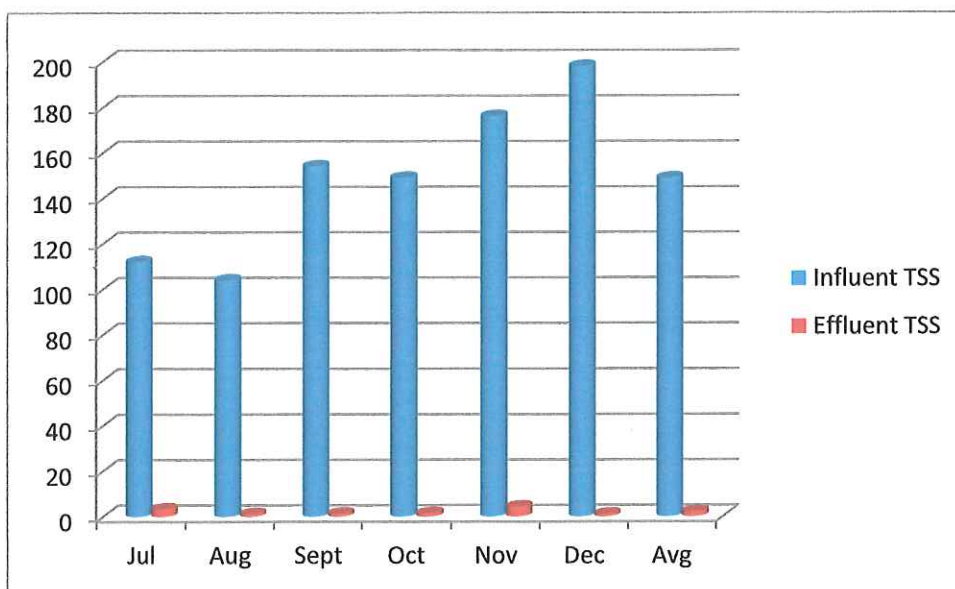
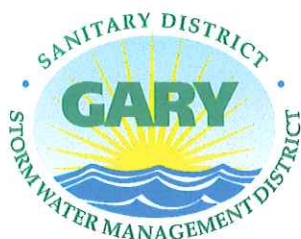


Table 7: TSS Raw Sewage vs Final Effluent

	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Influent	112mg/L	104mg/L	154 mg/L	149 mg/L	176 mg/L	198mg/L	149 mg/L
Effluent	3.3 mg/L	1.2 mg/L	1.3 mg/L	1.5 mg/L	4.3 mg/L	1.1 mg/L	2.2 mg/L
Removed	97.1%	99.8%	99.2%	99.0%	97.6%	99.4%	98.6 %



Decreasing the amount of phosphorus discharged from the WWTP into receiving waters is a key factor in preventing excessive algal blooming and oxygen depletion. When compared with raw influent sample results, final effluent sample results indicated an average removal of 95.0%. Moreover, the GSD NPDES permit required phosphorus removal based on each month's average raw influent phosphorus concentration, was easily surpassed.

<u>Phosphorus level in raw sewage mg/L</u>	<u>Required Removal %</u>
Greater than or equal to 4	80 %
Less than 4, greater than or equal to 3	75 %
Less than 3, greater than or equal to 2	70 %
Less than 2, greater than or equal to 1	65 %
Less than 1	60 %

Figure 16: TPO4-P Influent vs Effluent

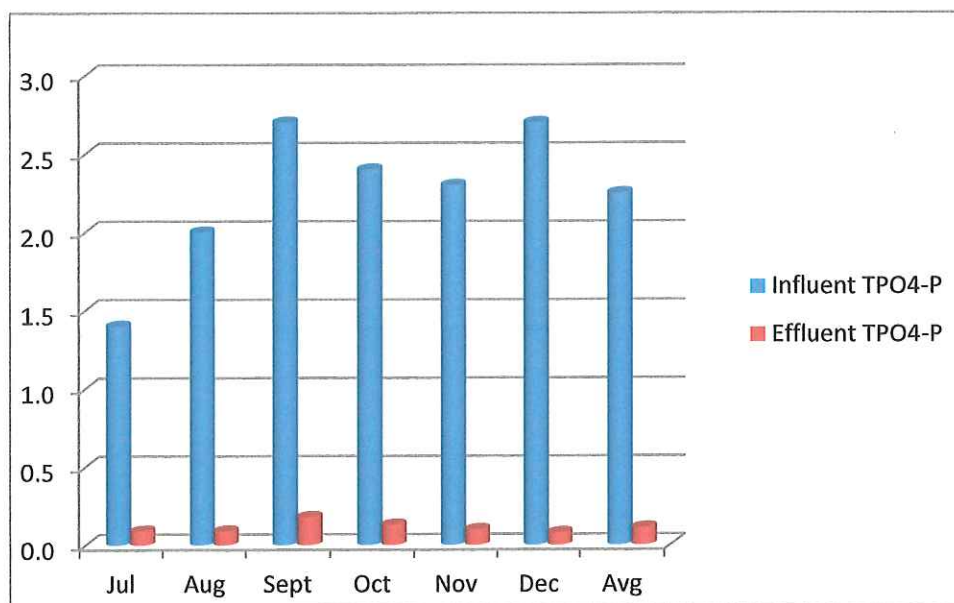


Table 8: TPO4-P Influent vs Effluent

	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Influent	1.4 mg/L	2.0 mg/L	2.7 mg/L	2.4 mg/L	2.3 mg/L	2.7 mg/L	2.3 mg/L
Effluent	0.09 mg/L	0.09 mg/L	0.18 mg/L	0.13 mg/L	0.10 mg/L	0.08 mg/L	0.11 mg/L
Removed	93.6%	95.5%	93.3%	94.6%	95.7%	97.0%	95.1%



Ammonia-nitrogen (NH₃-N) removal from wastewater prior to discharging into receiving waters is necessary because it is toxic to fish, stimulates aquatic plant growth, affects the suitability of wastewater for reuse purposes, and presents a public health hazard. Raw influent samples compared to final effluent samples indicated an average removal of 98.2 %. There were multiple NH₃ exceedances all related to maintenance of operations issues during the aeration improvement project.

Figure 17: NH₃-N Influent vs Effluent

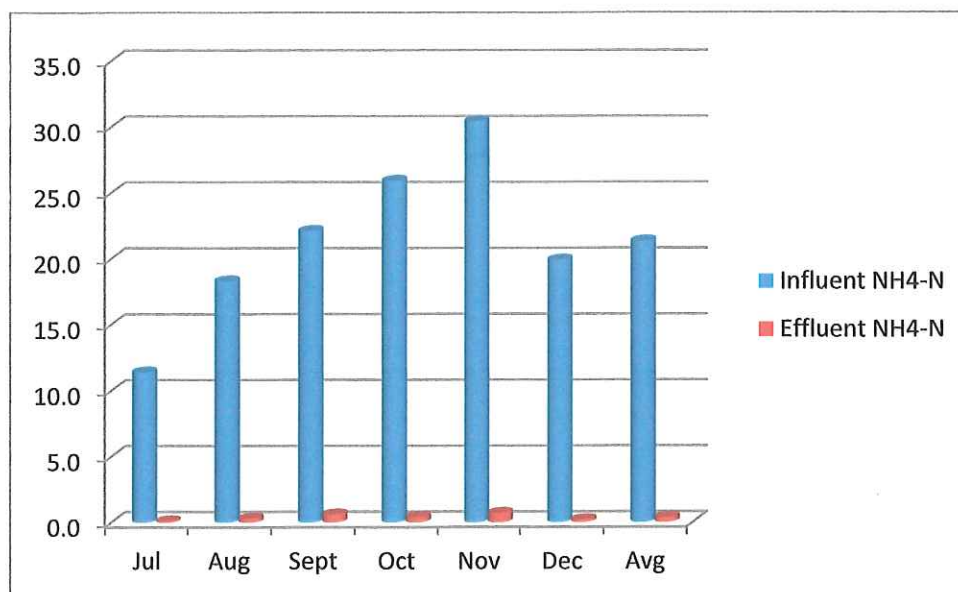


Table 9: NH₃-N Influent vs Effluent

	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Influent	11.4 mg/L	18.3 mg/L	22.1 mg/L	25.9 mg/L	30.4 mg/L	19.9 mg/L	21.3 mg/L
Effluent	0.1 mg/L	0.3 mg/L	0.6 mg/L	0.4 mg/L	0.7 mg/L	0.2 mg/L	0.4 mg/L
Removed	99.1%	98.4%	97.3%	98.5%	97.7%	99.0%	98.2%



Solids Treatment and Removal

Solids are separated from wastewater at multiple steps in the treatment train. Materials collected by the trash rack and bar screens discharge directly into roll-off containers and are ultimately disposed of in the Newton County Landfill.

Grit is pumped from the detritus tanks to two grit classifiers to separate solids from the waste stream. Dewatered grit is also disposed of in the Newton County Landfill.

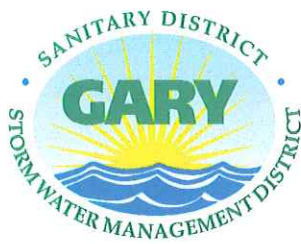
Sludge that settles in primary clarifiers is pumped to primary de-gritters that discharge grit to a grit box and then to the Newton County Landfill. The waste stream from primary de-gritters is pumped to gravity thickener tanks. Supernatant from gravity thickener tanks is recycled back to the head of the plant. Wasted sludge from secondary clarifiers is pumped to the gravity belt thickener.

Scum is collected by the scum collection system and eventually disposed of in the Newton County Landfill.

Thickened sludge from gravity thickeners and the gravity belt thickener is pumped to the blend tank. The blend tank feeds the primary digesters where anaerobic bacteria stabilize, or reduce the volatile organic solids. During this process methane is formed that can be used to heat the digesters. Secondary digesters provide a quiescent area to promote gravity thickening of sludge.



Figure 18: Gravity Belt Thickener



From secondary digesters, sludge is transferred to a belt filter press (BFP) wet well. From there sludge is pumped onto a BFP located in the dewatering building. The goal is to produce as dry a cake as possible to minimize removal expenses. Polymer is added to the sludge to further enhance the dewatering process. A conveyor system moves the dewatered sludge from the BFP to the sludge storage building. During this monitoring period, 18,822 wet tons were hauled to Newton County Landfill, down from 22,684 wet tons in corresponding months a year ago.



Figure 19: Dewatering Building

Table 10 lists dewatered solids' data from July 1, 2020 to December 31, 2020.

Table 10: Dewatered Solids

Month	% Solids to BFP	% Solids from BFP	Sludge Hauled to Landfill (Wet Tons)
Jul	2.8%	15.8%	3648
Aug	2.3%	14.0%	2645
Sep	2.2%	13.6%	3210
Oct	2.2%	13.5%	4094
Nov	2.3%	12.5%	3776
Dec	2.0%	14.2%	1449
Total			18,822



III. Sewer Collection System

The GSD sewer collection system is comprised of about 450 miles of combined sanitary and storm sewers and 33 lift stations to convey wastewater to the WWTP. In addition, there are 12 Combined Sewer Overflow (CSO) locations through which wet weather discharges are permitted provided the WWTP is simultaneously operating at the maximum treatable flow in order to reduce the magnitude, frequency and duration of CSO discharges (CSOs).

From July 1, 2020 through December 31, 2020, there were 7.0 wet weather CSOs associated with 14.9 inches of rain, down 67% and 39% respectively from the corresponding period in 2019. In addition, the volume discharged was 94% less than was discharged a year ago.

Table 11: CSO Events

Month	CSO Events	Precipitation (inches)	Volume Discharged (MG)
Jul	3	3.0	4.160
Aug	1	1.6	0.960
Sep	0	3.1	0.000
Oct	1	2.9	2.339
Nov	1	2.1	1.041
Dec	1	2.1	0.075
Total	7	14.9	8.575



The Sewer Collection Department completed the following activities during the July 1, 2020 through December 31, 2020 monitoring period.

Table 12: Sewer Collection Department Activities

Month	Sewer Cleaning (linear ft)	Sewer Televising (linear ft)	Sections Cleaned	Sections Televised	Catch Basins Cleaned	Manholes Inspected
Jul	11,218	2,489	59	21	269	0
Aug	23,906	1,487	149	9	578	0
Sep	28,282	450	169	4	284	0
Oct	17,431	1,357	102	10	488	35
Nov	7,590	406	44	4	655	19
Dec	19,771	10,270	90	43	360	540
Totals	108,198	16,429	613	99	2,634	594

The Sewer Collections Department utilizes four street sweepers to proactively keep debris from entering the GSD combined sewers. Table 13 lists the miles swept and the tons of debris removed from the Gary city streets during the July 1, 2020 through the December 31, 2020 monitoring period.

Table 13: Street Sweeping Data

Month	Miles Swept	Tons of Debris Removed
Jul	141	372
Aug	108	353
Sep	66	354
Oct	66	161
Nov	15	82
Dec	-	-
Totals	396	1,322



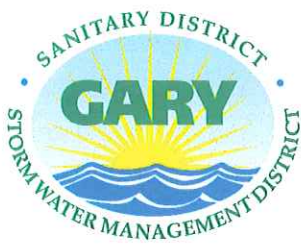
IV. Maintenance and Capital Improvements

GSD continues to consider maintenance and capital improvements critical components of day-to-day plant activities in order to meet regulatory requirements. Maintenance management identifies, prioritizes, plans, and assigns maintenance tasks to ensure that equipment operates as designed when needed. The GSD maintenance staff and outside contractors complete routine maintenance, corrective maintenance, preventative maintenance, and capital improvement activities to that end.

Routine maintenance activities are those associated with the general upkeep of the plant. Corrective maintenance activities include those required to correct a failure that has already occurred. Preventive maintenance activities are time-based activities designed to inspect, detect, and correct potential problems before they occur or before they develop into major failures. Capital improvements are additions or alterations that add value or appreciably prolong the useful life of GSD assets.



Figure 19: Secondary Clarifier Maintenance



From July 1, 2020 through December 31, 2020 maintenance and capital improvement activities were completed at a cost \$13,302,981.44, the majority of which was due to the aeration improvement, boiler replacement, sewer, and lift station projects.

Figure 20 and Table 14 summarize maintenance costs by area.

Figure 20: Maintenance Costs By Area

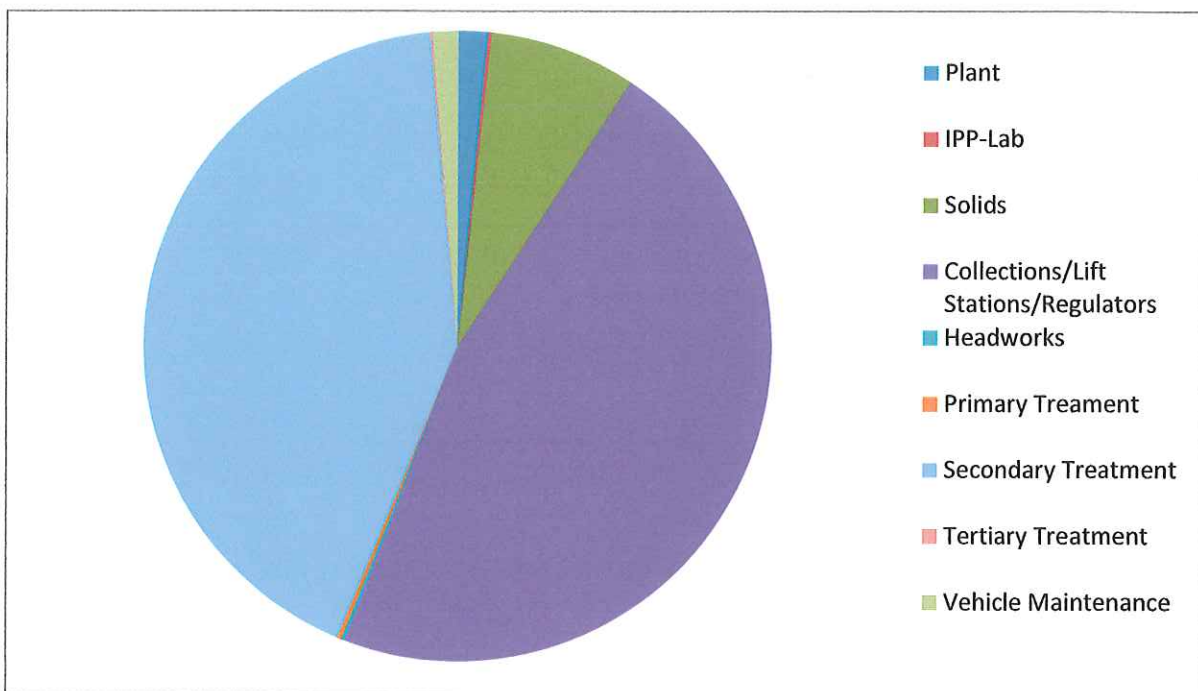
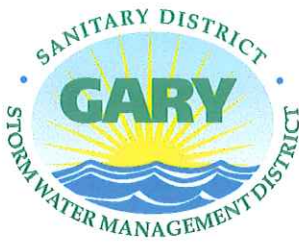


Table 14: Maintenance Costs By Area

Area	Costs
Plant - General	\$198,995.59
IPP-Lab	\$23,082.90
Solids	\$1,001,558.74
Collections/Lift Stations/Regulators	\$6,207,122.72
Headworks	\$20,785.75
Primary Treatment	\$29,308.08
Secondary Treatment	\$5,626,822.04
Tertiary Treatment	\$15,215.96
Vehicle Maintenance	\$180,089.66
Totals	\$13,302,981.44



A summary of some of the maintenance activities and capital improvements completed between July 1, 2020 and December 31, 2020 include:

- The Aeration Improvement Project is near completion. Thieneman Construction has installed new energy efficient blowers with header and controls work remaining. This project is expected to result in significant electrical energy savings.
- Mechanical Concepts installed three new boilers that are more energy efficient and reliable than the old ones and are expected to result in gas energy savings.
- Fine bubble diffusers were installed in the contact chambers and the 14" line that conveys air from the blower building to the contact chambers was replaced, both by Thieneman Construction. Fine bubble diffusers are more energy efficient and provide for more efficient air transfer than coarse bubble diffusers.
- Just over 1600 feet of sewer mains were replaced and nearly 5000 feet of sewer mains were lined.
- A new lift station serving the Black Oak section of Gary is under construction.
- Filter cell concrete rehab is underway.
- RAS valves for aerators, #1, #2, and #5 were replaced by Thieneman Construction.
- Control House #1, Pump #2 was replaced by GSD staff.
- The North primaries' deflector plates were replaced by GSD staff.
- Primary Tank #10 electrical wiring was replaced by Sweney Electric.
- Raw sewage pumps 4-20 and 5-20 were repaired by GSD staff.
- Skimmers for Primary tanks #5 and #6 were replaced by Rebuild it Services Group
- Gravity tanks were pumped down and cleaned.
- Secondary tank #17 skimmer was repaired.
- Primary de-gritter piping for south primaries was replaced by GSD staff.
- The north GBT sludge pump was repaired by GSD staff.
- The west RAS north pump was repaired.
- Bar screen #2 was repaired by GSD staff.
- Plant-wide flow meters were calibrated.
- Intermediate tanks 1-8 were cleaned and repaired.